IN THE CLAIMS:

Please amend claim 1, as follows.

1. (Currently Amended) An automatic speech recognition system, which recognizes speeches in acoustic signals detected by a plurality of microphones as character information, the system comprising:

a sound source localization module configured to localize a sound direction corresponding to a specified speaker based on the acoustic signals detected by the plurality of microphones;

a feature extractor configured to extract features of speech signals included in one or more pieces of information detected by the plurality of microphones;

an acoustic model memory configured to store direction-dependent acoustic models that are adjusted to a plurality of directions at intervals;

an acoustic model composition module configured to compose an acoustic model adjusted to the sound direction, which is localized by the sound source localization module, based on the direction-dependent acoustic models in the acoustic model memory, the acoustic model composition module also configured to store the acoustic model in the acoustic model memory; and

a speech recognition module configured to recognize the features extracted by the feature extractor as character information using the acoustic model composed by the acoustic model composition module.

wherein the acoustic model composition module is configured to compose an acoustic model for the sound direction.

2. (Previously Presented) An automatic speech recognition system, which recognizes speeches of a specified speaker in acoustic signals detected by a plurality of microphones as character information, the system comprising:

a sound source localization module configured to localize a sound direction corresponding to the specified speaker based on the acoustic signals detected by the plurality of microphones;

a sound source separation module configured to separate speech signals of the specified speaker from the acoustic signals based on the sound direction localized by the sound source localization module;

a feature extractor configured to extract features of the speech signals separated by the sound source separation module;

an acoustic model memory configured to store direction-dependent acoustic models that are adjusted to a plurality of directions at intervals;

an acoustic model composition module configured to compose an acoustic model adjusted to the sound direction, which is localized by the sound source localization module, based on the direction-dependent acoustic models in the acoustic model memory, the acoustic model composition module is configured to store the acoustic model in the acoustic model memory; and

a speech recognition module configured to recognize the features extracted by the feature extractor as character information using the acoustic model composed by the acoustic model composition module.

3. (Previously Presented) A system according to claim 1, wherein the sound source localization module is further configured to:

perform a frequency analysis for the acoustic signals detected by the microphones to extract harmonic relationships;

acquire an intensity difference and a phase difference for the harmonic relationships extracted through the plurality of microphones;

acquire belief factors for a sound direction based on the intensity difference and the phase difference, respectively; and

determine a most probable sound direction.

4. (Previously Presented) A system according to claim 1, wherein the sound source localization module is further configured to employ a scattering theory to generate a model for an acoustic signal, which scatters on a surface of a member to which the microphones are attached, according to a sound direction so as to specify the sound direction for the speaker with the intensity difference and the phase difference detected from the plurality of microphones.

5. (Previously Presented) A system according to claim 2, wherein the sound source separation module is further configured to employ an active direction-pass filter so as to separate speeches, the filter is configured to:

separate speeches by a narrower directional band when a sound direction, which is localized by the sound source localization module, lies close to a front, which is defined by an arrangement of the plurality of microphones; and

separate speeches by a wider directional band when the sound direction lies apart from the front.

6. (Previously Presented) A system according to claim 1, wherein the acoustic model composition module is configured to compose an acoustic model for the sound direction by applying weighted linear summation to the direction-dependent acoustic models in the acoustic model memory, and weights introduced into the linear summation are determined by training.

7. (Previously Presented) A system according to claim 1, further comprising a speaker identification module,

wherein the acoustic model memory is further configured to possess the direction-dependent acoustic models for respective speakers, and

wherein the acoustic model composition module is further configured to:

refer to direction-dependent acoustic models of a speaker who is identified by the speaker identifying module and to a sound direction localized by the sound source localization module;

compose an acoustic model for the sound direction based on the direction-dependent acoustic models in the acoustic model memory; and

storing the acoustic model in the acoustic model memory.

8. (Previously Presented) An automatic speech recognition system, which recognizes speeches of a specified speaker in acoustic signals detected by a plurality of microphones as character information, the system comprising:

a sound source localization module configured to localize a sound direction corresponding to the specified speaker based on the acoustic signals detected by the plurality of microphones;

a stream tracking module configured to store the sound direction localized by the sound source localization module so as to estimate a direction in which the specified speaker is moving, the stream tracking module estimating a current position of the speaker according to the estimated direction;

a sound source separation module configured to separate speech signals of the specified speaker from the acoustic signals based on a sound direction, which is determined by the current position of the speaker estimated by the stream tracking module;

a feature extractor configured to extract features of the speech signals separated by the sound source separation module;

an acoustic model memory configured store direction-dependent acoustic models that are adjusted to a plurality of directions at intervals;

an acoustic model composition module configured to compose an acoustic model adjusted to the sound direction, which is localized by the sound source localization module, based on the direction-dependent acoustic models in the acoustic model memory, the acoustic model composition module is configured to store the acoustic model in the acoustic model memory; and

a speech recognition module configured to recognize the features extracted by the feature extractor as character information using the acoustic model composed by the acoustic model composition module.

9. (Previously Presented) A system according to claim 2, wherein the sound source localization module is configured to:

perform a frequency analysis for the acoustic signals detected by the microphones to extract harmonic relationships;

acquire an intensity difference and a phase difference for the harmonic relationships extracted through the plurality of microphones;

acquire belief factors for a sound direction based on the intensity difference and the phase difference, respectively; and

determine a most probable sound direction.

10. (Previously Presented) A system according to claim 2, wherein the sound source localization module configured to employ a scattering theory to generate a model for an acoustic signal, which scatters on a surface of a member to which the microphones are attached, according to a sound direction so as to specify the sound direction for the speaker with the intensity difference and the phase difference detected from the plurality of microphones.

11. (Previously Presented) A system according to claim 2, wherein the acoustic model composition module is configured to compose an acoustic model for the sound direction by applying weighted linear summation to the direction-dependent acoustic models in the acoustic model memory, and weights introduced into the linear summation are determined by training.

12. (Previously Presented) A system according to claim 2, further comprising a speaker identification module,

wherein the acoustic model memory is further configured to possess the direction-dependent acoustic models for respective speakers, and

wherein the acoustic model composition module is further configured to:

refer to direction-dependent acoustic models of a speaker who is identified by the speaker identifying module and to a sound direction localized by the sound source localization module;

compose an acoustic model for the sound direction based on the direction-dependent acoustic models in the acoustic model memory; and

store the acoustic model in the acoustic model memory.